

REMARKS

25 The office action dated January 19, 2006 has been carefully considered. This Amendment, taken with the following remarks, is believed sufficient to place the present application in condition for allowance. Reconsideration and an early allowance are respectfully requested.

Claim 15 has been amended to recite the polymorphism, as originally intended, and to delete the term "fragment," in order to avoid confusion between the phospholamban gene and the phospholamban coding region.

30 Applicants appreciate the Examiner bringing the error, and confusion, to their attention. Accordingly, Applicants are submitting a Substitute Sequence Listing, in both paper and computer readable forms, wherein SEQ ID NO: 7, the nucleotide sequence of the polymorphism, is added. Support for this comes throughout the application, and, in particular, in the portions of the

35 disclosure defining the polymorphism as having a single base mutation at position 116 of the wild type, wherein a G replaces a T (see, e.g. page 8, lines 19-21). New independent claim 18 is added, which is directed to subject matter found, for example, Fig. 1, and page 11, lines 9-13. New dependent claim 19 is directed to subject matter disclosed, for example, in Fig. 1, and

40 designated as the L39Stop Codon mutation on page 12, lines 3-4. As it is believed that this Amendment does not involve the addition of new matter, entry and consideration are respectfully requested.

Applicants acknowledge the finality of the election. Claims 1-20 are pending, and claim 15 is currently subject to examination.

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Objection to the Specification

The specification was objected to due to an asserted inconsistency between the panel labeling of Figure 3, and the text of the "Detailed Description of the Drawings" section. Applicants believe that the present amendment to the specification overcomes this inconsistency by specifically describing which each panel illustrates. Support in the disclosure for this amendment is found explicitly on page 14, first paragraph. As Applicants do not believe the amendment involves the addition of new matter, entry is respectfully requested.

35 U.S.C. § 112, first paragraph; written description

Claim 15 is rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Specifically, the Examiner asserts that the claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors had possession of the claimed invention as of the filing date.

In particular, the Examiner asserts that the claim encompasses any nucleic acid comprising SEQ ID NO: 1, but which is polymorphic with respect to that sequence, or polymorphic on either side of that sequence, from any source, as well as polymorphic with respect to fragments of SEQ ID NO: 1, while the specification "has only described a single polymorphism within SEQ ID NO: 1, T to G at position 16, which is associated with dilated cardiomyopathy (DCM) when present as a homozygous mutation." The Examiner continues, asserting that the claim encompasses a large genus of nucleic acids which comprise polymorphisms at any position or to either side of SEQ ID NO: 1, for which no written description is provided. The Examiner

75 further asserts that the Applicants demonstrate possession for only 1 particular polymorphism in a genus comprising "hundreds of millions" of possibilities, and fail to recite a common element permitting selection. The Examiner buttresses this assertion by referring to the teachings of Schmitt, et al., which assertedly disclose a polymorphism in human phospholamban at position 25, which appears to result in a mutation in a different domain than the present polymorphism, and manifest in a disease state in the heterozygous state. This rejection is traversed and reconsideration is respectfully requested.

80 Instant claim 15 is directed to an isolated phospholamban polymorphism comprising SEQ ID NO: 7. This particular sequence defines the inventive polymorphism as disclosed in the present specification. "Fragment" has been deleted from the claim, since it is understood that a fragment of a nucleic acid comprising the inventive polymorphism is included within the scope of the claim.

85 As the Examiner noted, the present disclosure fully supports the subject matter of claim 15, as amended. Hence, the rejection of claim 15 under 35 U.S.C. § 112, first paragraph, is obviated and reconsideration is respectfully requested.

90 **35 U.S.C. § 112, second paragraph; definiteness**

Claim 15 is further rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Specifically, the Examiner notes that the claim recites "an isolated phospholamban polymorphism fragment comprising SEQ ID NO: 1," and asserts that this "is confusing because the term 'comprising' is normally taken to mean the full sequence of SEQ ID NO: 1 with any nucleotides on

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either side...[the context being]...unclear in this situation because the only mutation/polymorphism taught in the specification is at position 116 of SEQ ID NO: 1, wherein said position is a G instead of a T." The Examiner notes that SEQ ID NO: 1 appears to be drawn to the wildtype sequence having T at position 116 so that it is not clear whether the term comprising is limited to the sequence of SEQ ID NO: 1, which does not have a polymorphism, or to a sequence comprising SEQ ID NO: 1 where the polymorphism occurs in nucleotides on either side of SEQ ID NO: 1, or to any mutation/polymorphism within SEQ ID NO: 1. The Examiner additionally asserts that the term "fragment" is confusing because it is unclear if the term intends fragments from within SEQ ID NO: 1, or whether the full sequence of SEQ ID NO: 1 is a fragment of a larger phospholamban nucleic acid, such that the metes and bounds of the claim are unclear. This rejection is traversed and reconsideration is respectfully requested.

As noted prior, instant claim 15 is directed to an isolated phospholamban polymorphism comprising SEQ ID NO: 7. Applicants appreciate the Examiner pointing out the error and in the recitation of the wild type phospholamban coding region, and note that SEQ ID NO: 7 sets forth the inventive polymorphism. Further, Applicants note that the assertedly confusing term "fragment," has been deleted from the claim.

Applicants submit, therefore, that the meanings of the claim terms are definite and the scope of the claim is readily ascertainable by a person of ordinary skill in the art. Hence, the rejection of claim 15 under 35 U.S.C. § 112, second paragraph has been overcome and reconsideration is respectfully requested.

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As noted prior, instant claim 15 is directed to an isolated phospholamban polymorphism comprising SEQ ID NO: 7. Applicants appreciate the Examiner pointing out the error and in the recitation of the wild type phospholamban coding region, and note that SEQ ID NO: 7 sets forth the inventive polymorphism. Further, Applicants note that the assertedly confusing term "fragment," has been deleted from the claim.

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35 U.S.C. § 102

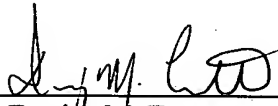
Claim 15 is rejected under 35 U.S.C. § 102(b) as being anticipated by Genbank Accession Number X15075 (deposited September 1993), Genbank Accession No. M60411 (deposited January 1995), and Kimura et al; Mol. Pharmacol., vol. 61, pages 667-673, 2002 ("Kimura"). These references teach sequences that are assertedly polymorphic with respect to SEQ ID NO: 1, and the Examiner notes that claim 15 has been broadly interpreted to encompass a nucleic acid that has polymorphisms or mutations with respect to SEQ ID NO: 1, a nucleic acid comprising SEQ ID NO: 1, and a nucleic acid which is a fragment of SEQ ID NO: 1 and which has polymorphisms with respect to SEQ ID NO: 1. This rejection is traversed and reconsideration is respectfully requested.

As previously noted, instant claim 15 is directed to an isolated phospholamban polymorphism comprising SEQ ID NO: 7. Applicants submit that the polymorphism set forth as SEQ ID NO:7 is not disclosed in any of the alleged 102(b) references asserted by the Examiner. Although these references disclose phospholamban polymorphisms, they do not teach or suggest the specific polymorphism recited in present claim 15.

Anticipation under 35 U.S.C. § 102(b) requires the disclosure in a single prior art reference of each element of the claims under consideration, *Alco Standard Corp. v. TVA*, 1 U.S.P.Q.2d 1337, 1341 (Fed. Cir. 1986). None of the asserted references teach a polymorphism as set forth in SEQ ID NO: 7, and recited in claim 15, wherein position 116 of the wild type phospholamban coding region has a base substitution of T → G. Hence, the rejection of claim

145 15 under 35 U.S.C. § 102(b) has been overcome and reconsideration is
respectfully requested.

Applicants believe that the above represents a complete and effective
response to the rejections of the present claims under 35 U.S.C. §§ 112, and
102. Hence, reconsideration and an early allowance are respectfully
150 requested.

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